



# ***CTO Briefing to Spanish Industry***

**Armaments Cooperation  
Foreign Comparative Testing  
Rapid Innovation Fund**



***March 2015***

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Director, Comparative Technology Office**

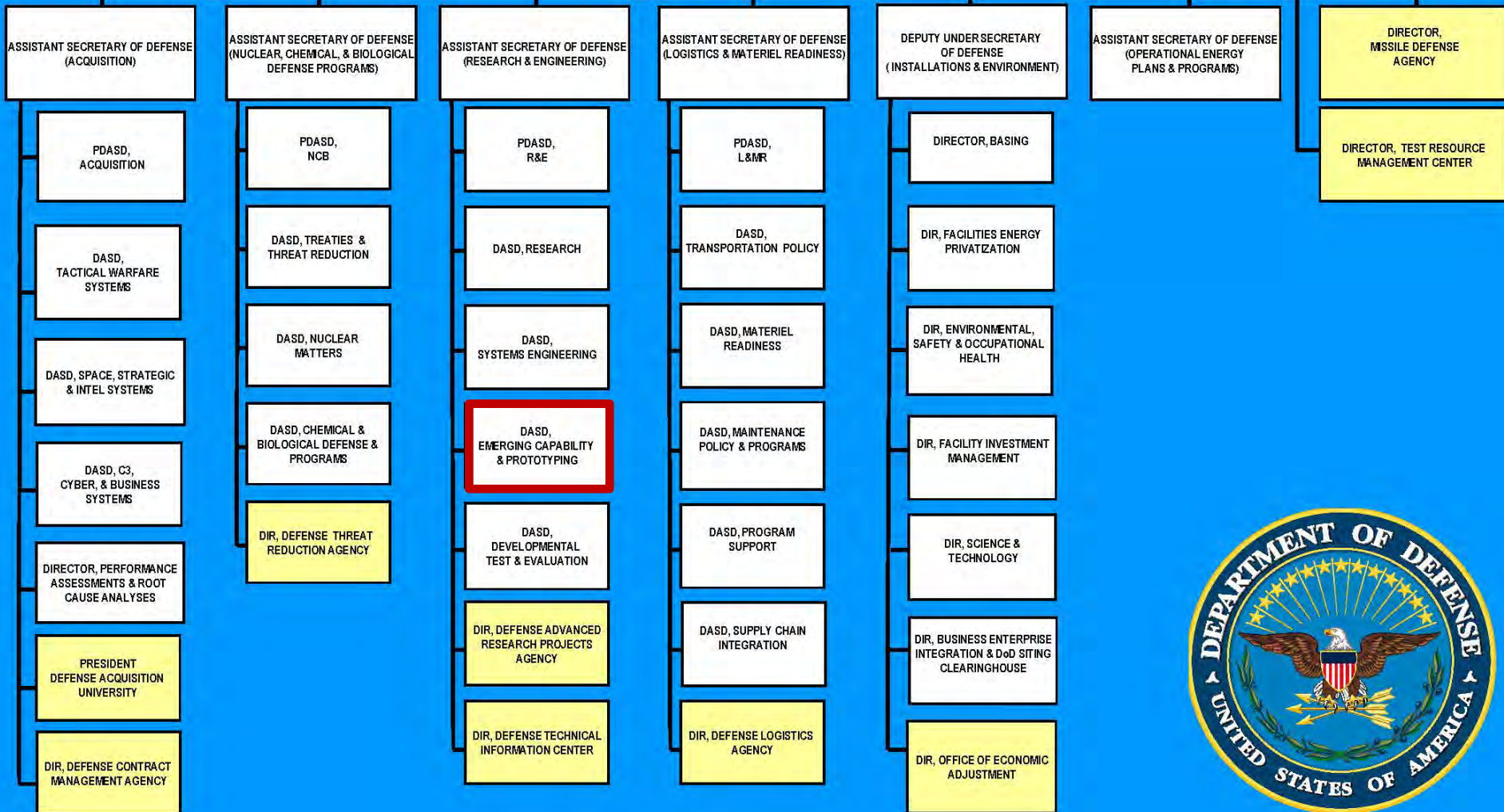
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UNDER SECRETARY OF DEFENSE  
(ACQUISITION, TECHNOLOGY AND LOGISTICS)

PRINCIPAL DEPUTY





# Armaments Cooperation



# International Cooperative Program



## **Any acquisition program or technology project that:**

- Includes participation by the U.S. and one or more foreign nations**
- Through an international agreement**
- During any phase of a system's life cycle**



# US – Spain Cooperation



- **Declaration of Principles**
- **Defense Industrial Cooperation Committee**
- **Master Data Exchange Agreement**
- **Engineering and Scientist Exchange Program**
- **Complementary Agreement Four**  
[Reciprocal Defense Procurement MOU]
- ***RDT&E and Security of Supply – Next Agreements***

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# Foreign Comparative Testing (FCT)



# Why Foreign Comparative Test?



**“As funding decreases across the department, the need for international collaboration increases”**

-- Al Shaffer, Assistant Secretary of Defense (ASD) Research and Engineering (R&E) (COMDEF, Sep 2013)

**In 2014, 2/3 of global R&D spending was outside the US\***

\*2014 Global R&D Funding Forecast,” Battelle and R&D Magazine, December 2013, p.7

**FCT → Innovation, Affordability, Improvements**





# FCT Mission



**Mission: Find, Assess & Field World-Class Technologies to Enhance Military Capabilities and Provide Long-Term Value**

- ***Connects Foreign Technologies to US DoD Development and Acquisition Programs***
- ***Execution:***
  - ***Office of the Secretary of Defense (OSD) Selects & Funds Projects***
  - ***US Military Services & USSOCOM Execute Testing***
- ***Technologies should present:***
  - ***Significant cost savings resulting in positive ROI***
  - ***Significant performance enhancements***
  - ***Novel approaches***





# FCT: Measuring Progress

~ Last 34 Years ~



- **OSD investment: \$1.23 Billion (B)**
  - Led to procurements for 271 projects worth **\$10.9B**
- **Accelerated fielding averages 2-4 years**
- **Led to foreign vendor teaming with U.S. industry in 34 states**
  - For about 30% of the projects procured
- **Average project: \$600-800K, 18-24 months**



# FCT for FY15 +



- ***Widen technology readiness spectrum***
  - **Operational FCT (Traditional): non-developmental foreign capability for qualification test for US system or platform (TRL 8-9)**
  - **Developmental FCT: Industry-based research that addresses key DoD capability issues (TRL 6-7)**
- ***Develop an information clearinghouse function foreign-industry technology options***



# Prototyping Focus Areas:

FY 2015 – 2016 (1 of 2)



***Electromagnetic Spectrum Agility:*** Capabilities that allow Department of Defense (DoD) forces to operate with freedom of maneuver in the electro-magnetic spectrum (EMS).

***Autonomous Systems:***

- Capability that enables a particular action of a system to be automatic or, within programmed boundaries, 'self-governing'
- Important for mobile unmanned systems that must maneuver in an environment with little or no human assistance, or systems that aid human cognitive tasks



# Prototyping Focus Areas:

FY 2015 – 2016 (2 of 2)

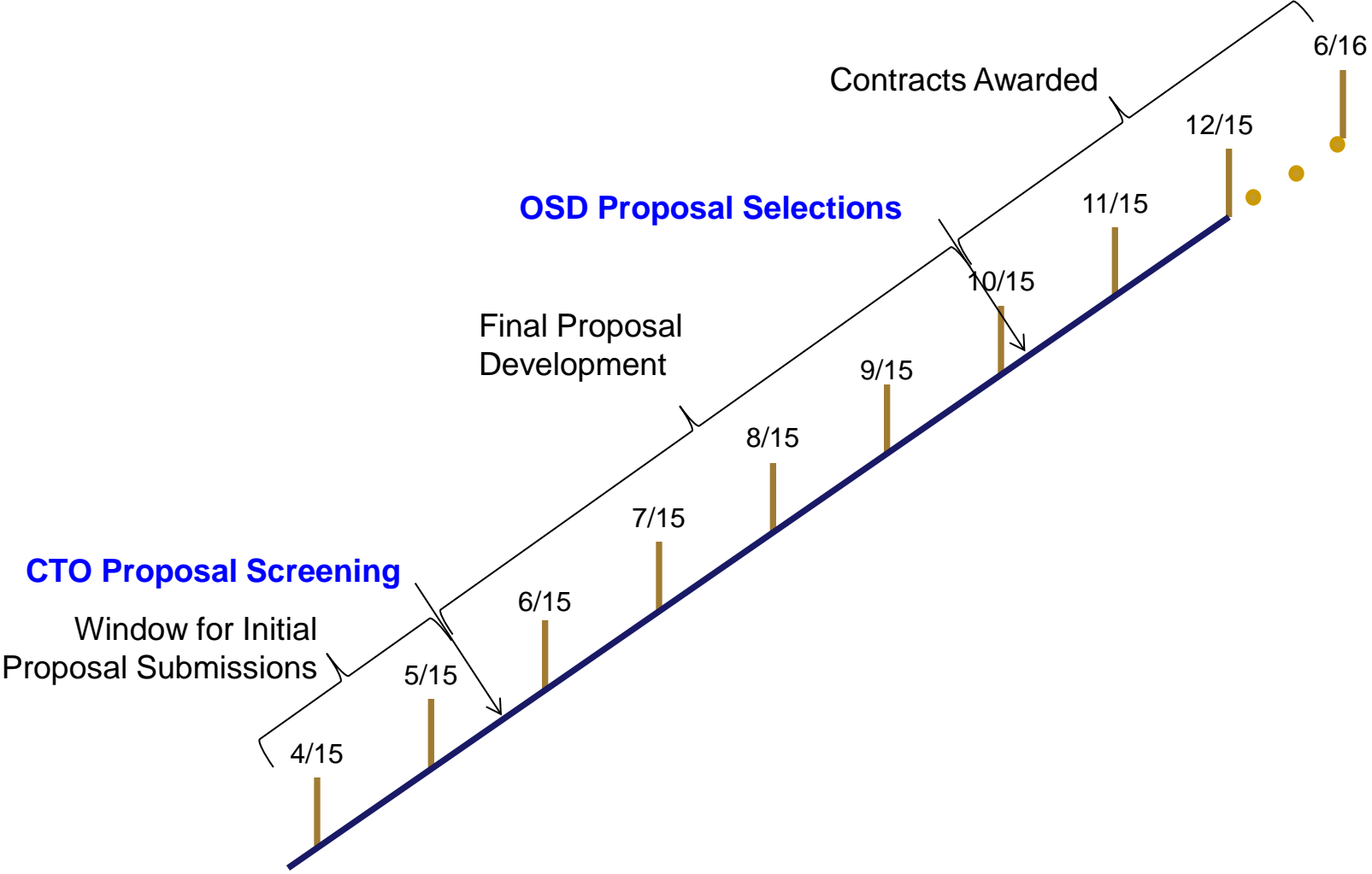


***Space Capability Resilience:*** Responds to a sophisticated adversary's attempts to deny us access to our space-based capabilities and adverse space conditions that degrade our space-based capabilities

***Asymmetric Force Application:*** Use of non-traditional technologies, tactics, and weapons to provide a clear military advantage to our forces during maneuver and engagement operations



# FY16 FCT Proposal Timeline





# Send Us Your Product Information



## Product Template

- Product
- Company Name
- Country
- POC Information
- Website
- TRL
- Countries Using
- Application (So What?)
- Science (How it works)
- Data (key performance metrics)
- US Partners
- Previous Work w/ DoD

### OSD Foreign Comparative Test - Product Template

**Product:** XX mm High Velocity (HV) Airburst Munitions System (ABMS)

**Company Name:** Advanced Systems (AS)

**Country:** Republic of Antarctica

**Point of Contact:** Mr. Jones

**Phone:** (555) 555-5555

**Website:** www.abcd.com

**Email:** abcd@abcd.com



**Short Description:** The HV ABMS consists of a Fire Control System, an Ammunition Programmer and XX x XX mm Air Burst Munitions. High explosive, Flash and Bang, Counter defilade, increased lethality, improved accuracy.

**Technology Readiness Level (fielded, lab tested, operational test):** TRL: 9 The HV ABMS is qualified and in production.

**Countries using the technology:** Madagascar, Dominican Republic, Greenland, etc.

**Application: (the so what?)** The HV ABM is specially designed to allow soldiers to effectively engage enemies in defilade and to provide improved accuracy and higher lethality through a technologically improved muzzle velocity compensation capability.

**Science (how it works):** Muzzle velocity compensation for the immediate round fired. The 40mm HV ABMS is an upgrade kit to existing launchers to provide Air Bursting Precision capability. The FCS accurately lazes the target and the ballistic card computes the time to burst. The computed time to burst based on the measured velocity is programmed into the fuze only upon exit at the ammunition programmer. Enhanced safety with its built-in self-destruct mode and gives ABM the ability to function as a point detonating HE cartridge as well as an Air-Burst cartridge.

**Data:**

- Grenade Length: XX mm • Weight: XXX gm
- Muzzle Velocity: XXX m/s • Maximum Range: XXXX m
- Lethal Radius: X m • Arming Distance: XX to XX m
- Fuze Type: Programmable Time Fuze

**U.S. Partner:** AS does not currently have a relationship with a US company.

**Previous work with DoD:** Technology developed through US DoD laboratory funding.



# How to Get More Info



- **CTO Website --**  
**<https://cto.acqcenter.com/osd/portal.nsf/>**
  - Additional background information on FCT
- **Contact your Embassy in DC – Defense Attaché or the trade or science and technology organization**
- **Contact the Security Cooperation Office / Attachés in the US Embassy in your country**
- **Contact CTO directly – either the main office or Service/SOCOM specific contacts given in this brief**





# Key Points of Contact



<b>OSD</b>	<b>CTO Main</b> <b>Col Scott Wallace</b> <b>Dan Cundiff</b> <b>Paul Frichtl</b> <b>Bob Thompson</b> <b>Mark Morgan</b> <b>Walker Adams</b>	<b>scott.t.wallace.mil@mail.mil</b> <b>thomas.d.cundiff.civ@mail.mil</b> <b>paul.j.frichtl.ctr@mail.mil</b> <b>robert.a.thompson172.ctr@mail.mil</b> <b>mark.j.morgan26.ctr@mail.mil</b> <b>walker.c.adams.ctr@mail.mil</b>	<b>571-372-6803</b> <b>571-372-6825</b> <b>571-372-6807</b> <b>571-372-6804</b> <b>571-372-6822</b> <b>571-372-6819</b> <b>571-372-6821</b>
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# **Rapid Innovation Fund (RIF) Program**



# Rapid Innovation Fund (RIF) Program: Background



- **Established by the Fiscal Year 2011 National Defense Authorization Act (Section 1073)**
  - **A competitive, merit-based program**
  - **Accelerate fielding of innovative technologies into military systems**

*Transition Small Business Technologies  
into Defense Acquisition Programs*



# RIF: Key Requirements

- ***Proposals or Projects:***

- Satisfy an operational or national security need
  - Accelerate or enhance military capability
  - In support of major defense acquisition program
- Reduce technical risk or cost
- Completed within 24 months of award
- Cost is not more than \$3 million

- ***Public Notice:***

- Federal Business Opportunities: [www.FedBizOpps.gov](http://www.FedBizOpps.gov)
- Research & Engineering Defense Innovation Marketplace
  - <http://defenseinnovationmarketplace.mil/RIF.html>

***Selection Preference to US Small Business Proposals***



# RIF FY 2015 – 2016 (FY15 Funds) Source Selection Milestones



Date(s)		Action	As of January 20, 2015
2015	March 1	Requirements from Components, prep DRAFT BAA	
	April 1	BAA Release in FEDBIZOPPs	
	June 1	BAA Closes: White Papers (WPs) due from offerors	
	NLT October 15	<ul style="list-style-type: none"> <li>Components complete WP evaluations</li> <li>Initial priorities and ranking by Components</li> </ul>	
	NLT November 1	Components notify all offerors of WP disposition, invite full proposals	
	NLT December 1	<ul style="list-style-type: none"> <li>Full proposals due from offerors</li> <li>Components start full proposal evaluations</li> </ul>	
2016	NLT February 1	Components complete full proposal evaluations	
	NLT March 1	Negotiations complete, contract awards	
	NLT June 1	FY15-funded RIF contract awards complete	



# Back-Up

## Examples of Successful FCTs



# Results – Innovation

New Process, New Approach or Concept, New Material



More resilient, corrosion resistant,  
and weldable alloy

Operations & Sustainment  
Avoidance \$1.2B



Provides audio cue from source  
direction for improved Situational  
Awareness

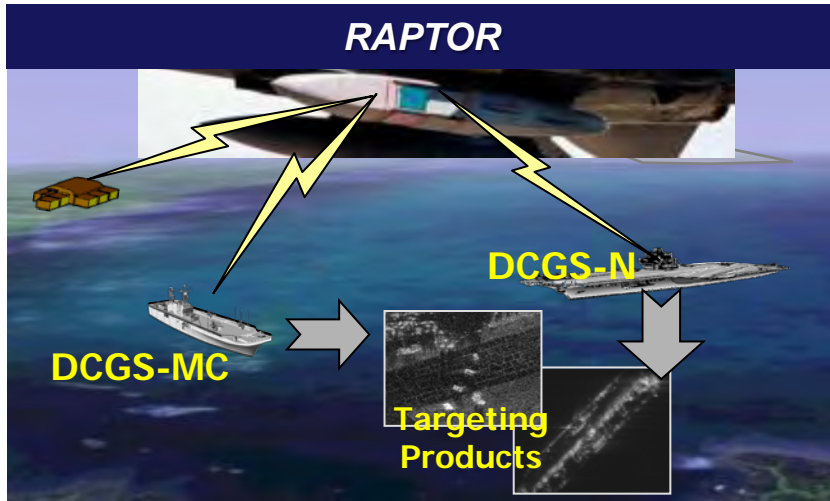
RDT&E Avoidance \$5.1M  
Fielding Reduction – 5+ years





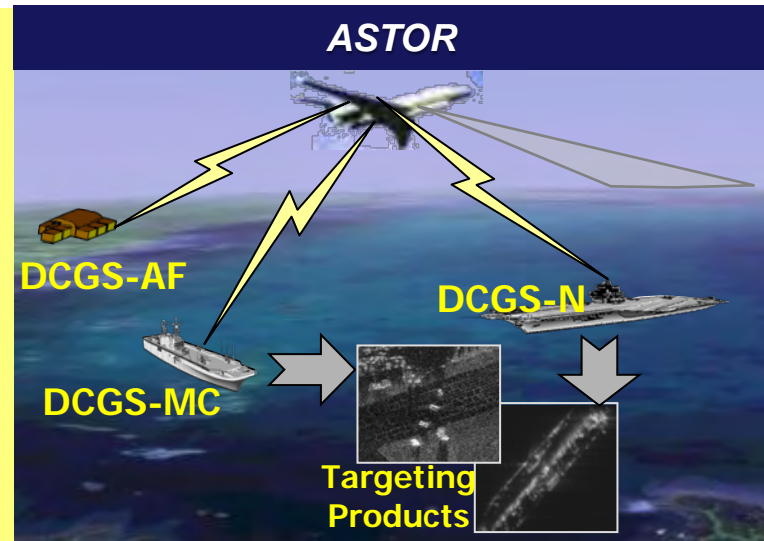
# Results – Interoperability

## Ability to Work More Closely with our International Partners



Enables US Distributed Common Ground System (DCGS) units to download stand-off electro-optic and infrared imagery collected by the Reconnaissance Airborne Pod TORnado (RAPTOR) pod on UK Tornado GR4 aircraft

Enables US Distributed Common Ground System (DCGS) units to download Synthetic Aperture Radar/Ground Moving Target Indication imagery collected by the Airborne STand-Off Radar (ASTOR) system on UK Sentinel aircraft





# Results – Value

Lower Life Cycle Cost, Multi-role, Reduced Man hours,  
Decreased Logistics Footprint



**Digital Flight Control System EA-6B**

Replaced analog flight controls  
with digital system that increased  
**Mean Flying Hours Between  
Failure from 83 to 3417 (measured)**  
= Operations & Sustainment  
Avoidance \$68M

Provides capabilities of 4  
separate rounds in one for less  
cost and logistics burden

**120mm Multi-Purpose High Explosive Rounds**

